

**Abstract**

1       A method of predicting the electromagnetic noise emitted by a digital circuit on an integrated  
2 circuit is disclosed. In accordance with the illustrative embodiment, the output of each digital circuit  
3 element in the digital circuit is considered as a bit stream. All of these bits streams are, in aggregate,  
4 considered as a noise source that is characterized by a power spectral density,  $S(\omega)$ . The effect of the  
5 noise source on an analog circuit can be modeled as a lumped circuit, wherein the lumped circuit  
6 contains a noise source that represents the digital circuit; a multi-port network, also referred to as a  
7 lumped element, that represents that portion of the substrate between the digital circuit and the analog  
8 circuit; and a multi-port network that represents the analog circuit.